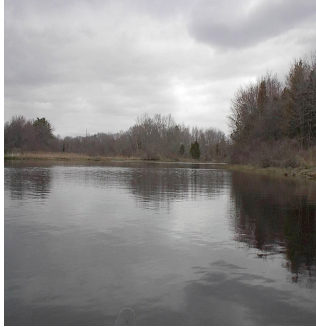


**APPENDIX B**

**METHOD FOR SELECTING WASTEWATER MANAGEMENT  
ALTERNATIVES**



# NEW HAMPSHIRE SEACOAST REGION WASTEWATER MANAGEMENT FEASIBILITY STUDY

## METHOD FOR SELECTING WASTEWATER MANAGEMENT ALTERNATIVES

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**Date:** 04/19/06  
**To:** NHDES, Great Bay Estuary Commission  
**From:** Metcalf & Eddy  
**Subject:** Identification of Four Wastewater Management Alternatives for Further Study  
**Distribution:** cc: ENSR, GC&G, Appledore Engineering, Steve Jones, TF Moran, Wright Pierce, File

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### INTRODUCTION

The purpose of this memorandum is to present the four wastewater management alternatives that will be considered in further detail in the alternatives analysis phase of the New Hampshire Seacoast Region Wastewater Management Feasibility Study. Ten preliminary alternatives were initially developed and presented in the *Alternatives Development Methodology (February 2006)*. These ten alternatives were the focus of an all-day charrette that was held on March 25, 2006 in Stratham, New Hampshire. The following items were considered to narrow the ten alternatives down to four alternatives:

- ◆ Findings from the *Final Preliminary Findings Report (December 2005)*;
- ◆ Comments received from the Great Bay Estuary Commission, stakeholders, and the public on project reports and at the charrette and other public meetings;
- ◆ Written correspondence from stakeholders, special interest groups, and the public;
- ◆ Senate Bill 70; and
- ◆ Implications of the alternatives in the following areas: land use and planning, ecology and water quality, technical and engineering aspects, and institutional and implementation issues.

The four alternatives presented in this memorandum are the result of this process.

## SUMMARY OF THE FOUR WASTEWATER MANAGEMENT ALTERNATIVES

A description of each alternative is provided below, as well as a brief explanation of why each alternative will be carried forward for further analysis. For all alternatives, upgrades to the wastewater treatment facilities (WWTFs) would occur as needed to comply with the future effluent limits previously established and presented in the Final Preliminary Findings Report. Also, the alternatives analysis portion of this study will address wastewater management needs for study area communities without WWTFs or sewers.

1. **No Action (formerly presented as Alternative Number 1).** For this alternative, treatment would continue at each of the 17 WWTFs within the study area, and treated effluent would be discharged at existing surface water discharge locations (see Figure 1).

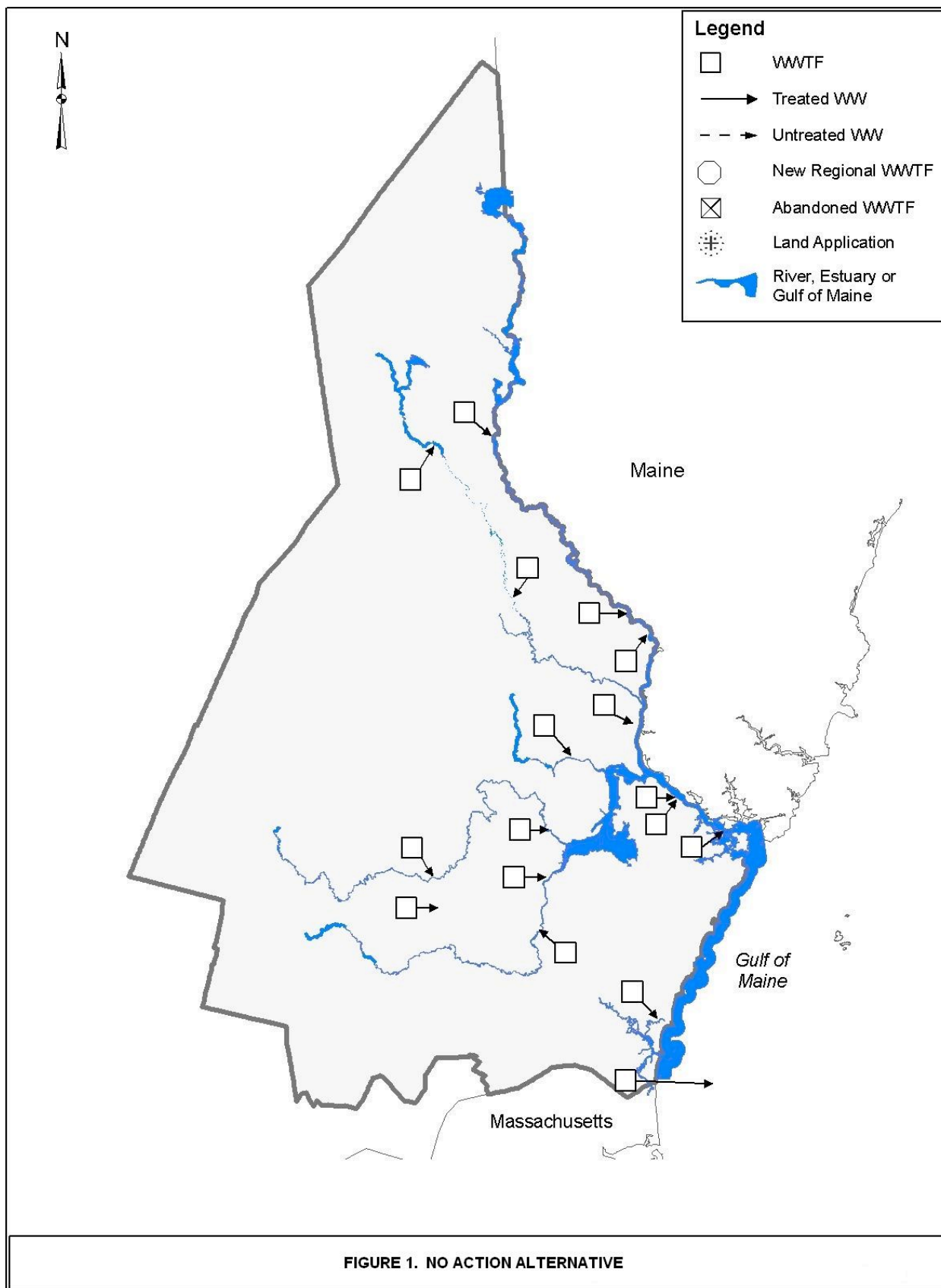
The No Action alternative will be carried forward since it sets a baseline of future conditions against which to compare impacts of the other project alternatives. Inclusion of a no action alternative is consistent with requirements for the National Environmental Policy Act (NEPA) process, which may be formally required depending on what alternatives are ultimately implemented. Please note that although this alternative is considered “no action,” WWTFs would still be required to meet all future effluent standards.

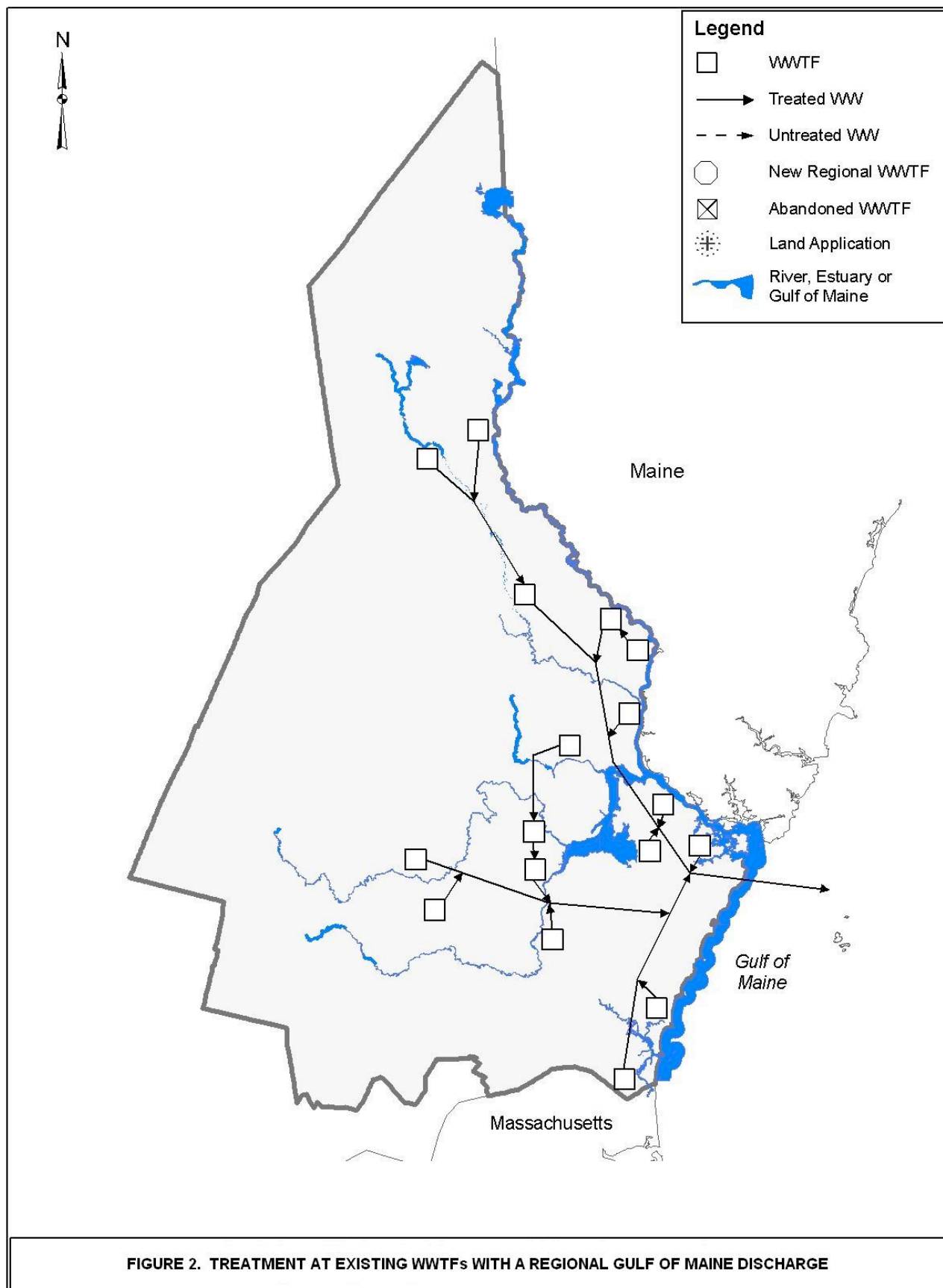
2. **Treatment at Existing WWTFs with a Regional Gulf of Maine Discharge (formerly presented as Alternative Number 3).** This wastewater treatment alternative involves continuing treatment at the existing WWTFs and conveyance of treated effluent through regional infrastructure (e.g., pump stations and pipelines) for discharge to the Gulf of Maine (see Figure 2).

This alternative has been selected for further study since Senate Bill 70 requires this study to determine the feasibility to remove treated effluent from the coastal drainage area and Great Bay and discharge it through a regional pipe in the Gulf of Maine.

3. **Decentralized Treatment and Continued Use of Existing WWTFs.** Existing WWTFs would continue to be used under this alternative. However, this alternative assumes only one-third of the future projected wastewater flow (above the current flow) for each community would be treated at the existing WWTFs, and the remaining two-thirds of the projected flow would go to decentralized (e.g., on-lot, cluster) systems for treatment and land application (see Figure 3). This alternative would include regional guidance for communities to use for establishing sewer service areas (beyond which sewer extensions would be discouraged) and promoting installation of on-lot/community systems for future developments. Specific identification of decentralized system locations will not be conducted as part of this alternative.

Although this alternative was not one of the ten preliminary alternatives, it was developed and chosen to be carried forward for further study largely in response to the many comments received requesting that decentralized treatment be included as part of a regional solution. This alternative has the potential to limit or control growth in the study area communities, and it would not result in inter-basin transfer of wastewater.





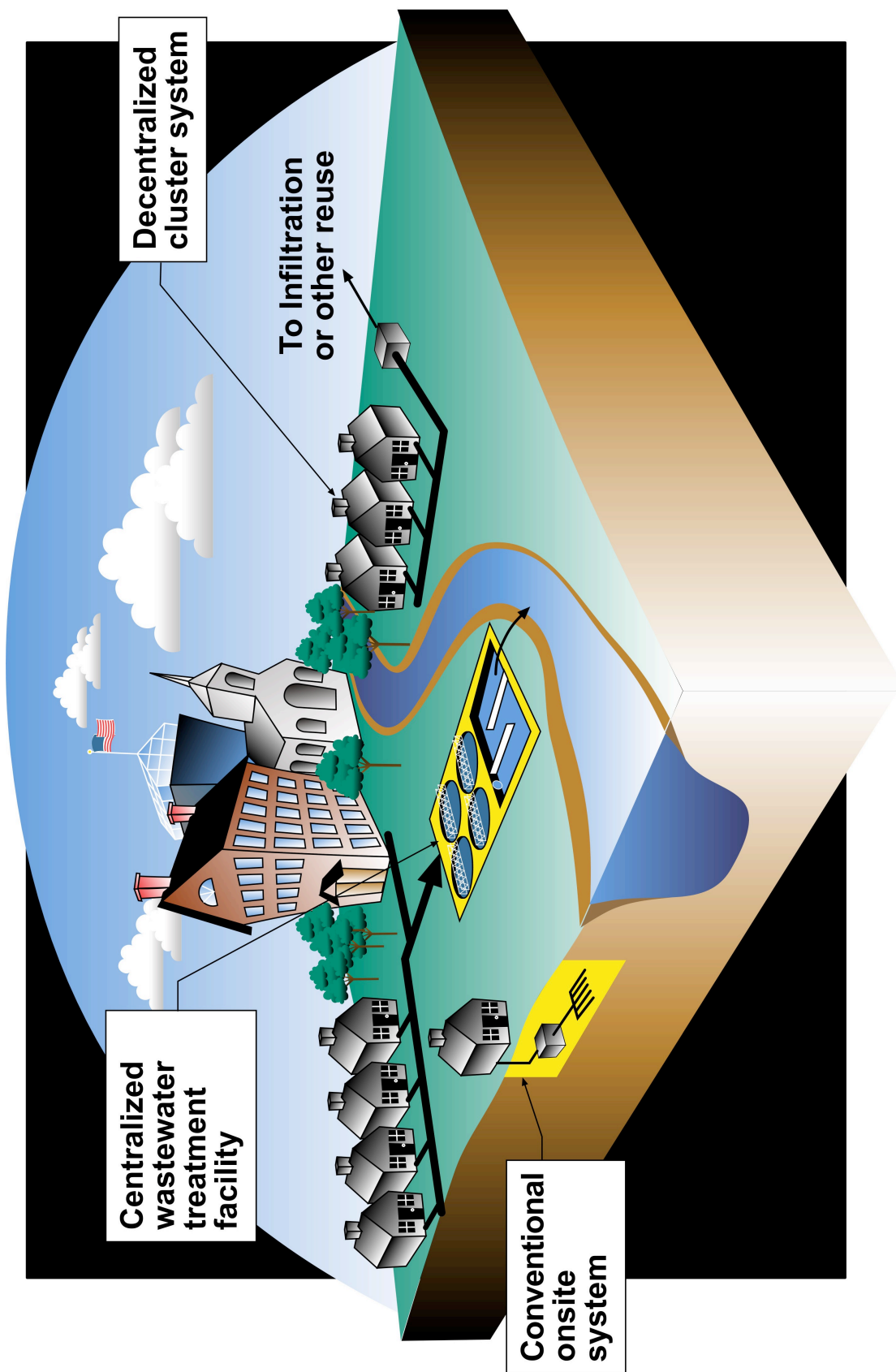


FIGURE 3. DECENTRALIZED TREATMENT AND CONTINUED USE OF EXISTING WWTFs

4. **Treatment at Existing WWTFs and Discharge at Land Application Sites (formerly presented as Alternative Number 2).** This alternative involves continuing treatment at the existing WWTFs; however, effluent treatment would be upgraded as needed to meet groundwater discharge standards, and treated effluent would then be discharged at local individual land application sites (see Figure 4). All attempts would be made to make this alternative “all or nothing,” meaning that all treated wastewater discharged in the study area would be to land application sites. This could mean that some communities may need to collaborate and share a land application site that is in a practical location relative to the WWTFs. In the rare case that land application is not found to be feasible for a WWTF, treated effluent would continue to be discharged at the existing surface water discharge location (i.e., “business as usual”).

This alternative was selected as one of the four alternatives for further study since it focuses on local land application and, thus, helps to round out the four alternatives by allowing all possible disposal options (i.e., existing receiving waters, Gulf of Maine, and land application) to be analyzed more closely in the next stage of this study.

### **Common to All Alternatives**

As previously stated, all septage generated from within the study area would be handled and treated within the study area. Also, biosolids (the solids that remain after wastewater is treated) would be disposed of in conjunction with the ongoing disposal methods currently practiced within the study area.

